

# Indiana Tech Flash

Indiana's Most Comprehensive Electronic Resource For  
Engineering & Technology Education.



Special points of  
interest:

- **7 Pages of Resources!**
- **Upcoming Events & Workshops**

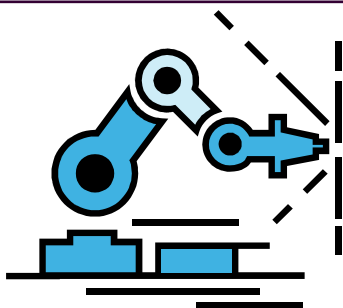


Features inside this  
issue include:

Nuts, Bolts & Thingamajigs	2
Free Pro/Engineer 3D CAD	3
Fuel our Future Now	4
Defined STEM	4
Architect Studio 3D	5
FIRST Robotics Workshop	6-8
Grant & Loan Forgiveness Resources	9

February 2010

## The FIRST Experience for STEM Education Workshop



The Boilermaker Regional Educator Program is designed to prepare Junior High/Middle and Upper Elementary Teachers to inspire their students in Science, Technology, Engineering, and Math (STEM) using robotics.

An introductory hands-on training program will be offered to teachers on Friday March 19, 2010 during the

Boilermaker Regional FIRST Robotics Competition March 19-20, 2010.

Activities will include LEGO Mindstorm (hands-on), demo of FTC robots and tour of the FRC robotics competition.

There is a limit of 24 participants from 12 schools. All applications are due on March 1, 2010. This hands-on workshop is designed for educators only.

Each accepted school that participates will receive (2) LEGO Mindstorm Robotics Kit with software and (1) LEGO Education Recourse Kit. (\$800 value) Thanks to

the generous donation of ISTEM.

There will be a \$50 fee for each school that attends.

**Online registration:**  
[www.conf.purdue.edu/bmr2010](http://www.conf.purdue.edu/bmr2010)



For more program information please contact:  
**Steve Florence**  
(765) 764-0400 phone  
(765) 764-0426 fax  
[florences@wl.k12.in.us](mailto:florences@wl.k12.in.us)

## Upcoming Dates & Events

- Annual PLTW Student Conference (IUPUI) - 2/12/2010
- World of Wheels Student Career Day (Indianapolis) – 2/12/2010
- Warren VEX Robotics Clean Sweep Qualifier Tournament (Warren Central HS) - 3/13/2010
- ITEA Conference (Charlotte, NC) — 3/18-20/2010
- FIRST Boilermaker Robotics (Lafayette) – 3/18-20/2010
- Engineering Expo: Purdue Student Engineering Foundation (Purdue University) - 3/30/2010
- IMSTEASuper Mileage Challenge (O'Reilly Raceway Park) - April 26, 2010



*Dedicated to nurturing the tinkering spirit*



### Nuts, Bolts & Thingamajigs Foundation

Through its manufacturing summer camps and scholarships, NBT is inspiring the next generation of manufacturers, welders, plumbers, carpenters and more ... one tinkerer at a time.

John Ratzenberger, a founder of NBT, speaks on behalf of the organization and how we are addressing the urgent need to engage young people in career preparation for well-paid, fulfilling jobs that require hands-on skills.

<http://www.nutsandboltsfoundation.org/>



National Science Foundation

### Resources for STEM Education

#### NSF Resources for STEM Education

K-12 Resources for Science, Technology, Engineering and Mathematics Education Resources and findings generated through educational research and development projects funded in part by the

National Science Foundation can help inform states and school systems that are developing strategies for improving K-12 STEM (science, technology, engineering and mathematics) education.

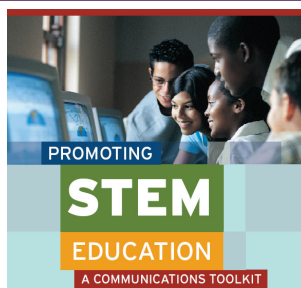
<http://www.nsfresources.org/home.cfm>



#### Blender 3-D design and animation software

Blender is the free open source 3D content creation suite, available for all major operating systems

<http://www.blender.org/>



#### The Importance of STEM Education

As governors move this important STEM (Science, Technology, Engineering and

Mathematics) policy agenda forward, they may find that some of their constituents have yet to be persuaded of the need for improvement. Some citizens and stakeholders may fail to grasp the strong link between high-quality STEM education and economic development in the state.

This toolkit provides core messages, materials, and communications strategies to help governors overcome such

challenges and build strong support for STEM education initiatives. 1512. Tel: 202-624-5300; Fax: 202-624-5313; Web site: <http://www.nga.org>

[http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content\\_storage\\_01/0000019b/80/43/2d/67.pdf](http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/43/2d/67.pdf)



National Center for  
Technological Literacy  
Museum of Science, Boston

### NATIONAL CENTER FOR TECHNOLOGICAL LITERACY LAUNCHES NEW WEBSITE

Museum of Science,  
Boston recently launched a  
new website making its  
National Center for  
Technological Literacy  
(NCTL) and its  
corresponding resources  
accessible nationwide

The new website offers  
educators information  
about NCTL curricula and  
professional development  
materials and provides  
individuals and  
organizations across the  
country with tools to  
advocate for technological  
literacy within their  
education systems.

The country's only science  
museum with a  
comprehensive strategy  
and infrastructure designed  
to foster technological  
literacy in both science

museums and schools  
nationwide, the Museum of  
Science now provides  
access on one easily  
navigable site to all NCTL  
activities and offerings.

They include low-cost K-12  
engineering curricula and  
professional development  
opportunities, design  
challenges, contact  
information, and news  
updates with relevant data  
and research.

<http://www.mos.org/nctl/>



VU is committed to  
broadening the dual  
credit options  
available to Indiana  
students and  
providing them with  
opportunities to  
receive hands-on  
college experience in  
career and technical  
areas. With this in  
mind, we are pleased  
to announce that  
beginning in the Fall  
of 2009, ***Project  
EXCEL will waive  
the tuition fee*** for  
students enrolled in  
dual credit courses in  
select career and  
technical areas.

[http://  
www.vinu.edu/cms/  
opencms/  
academic\\_resource  
s/project\\_excel/](http://www.vinu.edu/cms/opencms/academic_resources/project_excel/)



### Manufacturing and Engineering Technologies Education Clearinghouse (METEC)

At METEC, you can still  
find our great  
manufacturing and  
engineering technologies  
education resources, links

and calendar of events.

If you are a former MERC  
Online member, you're  
probably wondering how  
to login to METEC. No  
problem. Your MERC  
Online user name and  
password have  
automatically been  
transferred to METEC.  
So, just login as you  
normally would.

We know you are going to  
enjoy your experience  
with the new METEC.  
And thank you for being a

loyal member of the  
MERC Online/METEC  
community.

[http://  
www.meteconline.org/](http://www.meteconline.org/)



### PTC Pro/Engineer Academy

Gain nearly 1 million  
worth of **FREE** CAD  
Software today!

Welcome to the PTC/  
Academy learning portal.  
Here you will find self  
directed and self paced  
tutorials to get you started  
using your FREE Pro/  
ENGINEER Wildfire!

[http://  
www.ptcacademy.com/](http://www.ptcacademy.com/)



## The Coalition For SCIENCE AFTER SCHOOL

### National STEM Directory

A zip-code searchable database designed to help families and young people across the country access informal science and technology learning opportunities in their communities.

partnership with Time Warner Cable as part of its philanthropic initiative Connect a Million Minds (connectamillionminds.com). The Directory will be promoted nationwide including, but not limited to, more than 14 million Time Warner Cable customers.

The tool was developed in

You are encouraged to

submit programs that can directly serve that audience, as well as ones of interest to policy-makers, funders and potential partners.

Search through thousands of science, technology, engineering, and mathematics (STEM) opportunities to engage youth before school, after school, and in the summer.

[http://  
afterschoolscience.org/  
directory/](http://afterschoolscience.org/directory/)



### Fuel Our Future

For high school students, the future is now. Students will use scientific data as well as engineering testing and design to learn about the factors that affect vehicle efficiency and safety.

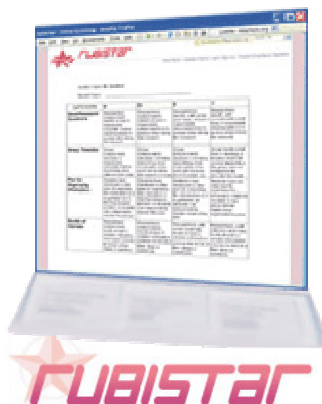
They research real-world

mass transit options, alternative fuels, and government tax incentives to provide alternatives to the gasoline-powered car.

Students collect information about the types of vehicles and transportation habits used by teachers, friends, and

neighbors. Finally, they use this information to create an action plan to reduce transportation-related energy use and greenhouse gas emissions.

[http://  
www.fuelourfuturenow.  
com/](http://www.fuelourfuturenow.com/)



**RubiStar** is a free tool to help teachers create quality rubrics.

[http://  
rubistar.4teachers.org/  
index.php](http://rubistar.4teachers.org/index.php)



### Defined STEM

would like to share with  
you FREE access

(for Indiana Teachers)  
to test drive Defined  
STEM.

**You will need to use  
the promo code of:  
"INSTEM"** This promo  
code will give you free  
access to the Defined  
STEM resources for 60  
days after you login!

[http://stem.defined  
learning.com](http://stem.definedlearning.com)





### **BUBBLE WRAP COMPETITION FOR YOUNG INVENTORS**

Sealed Air Corporation and the National Museum of Education (NMOE) are sponsoring the fourth annual BubbleWrap Competition for Young Inventors to encourage students in grades 5-8 to demonstrate their

creativity and ingenuity with an invention that incorporates BubbleWrap cushioning in its design.

Three finalists will win a trip to New York City, where the Grand Prize Winner will be announced at the BubbleWrap Awards Ceremony on May 22. The Grand Prize Winner will also receive a \$10,000 savings bond, while the 2nd and 3rd place winners will receive \$5,000 and \$3,000 bonds.

Each finalist's teacher/mentor will receive a \$500 gift card. In addition, the school of the Grand Prize Winner will receive a \$5,000 donation. The entry deadline is March 3, 2010. Entry forms, and more details on the competition, may be found at

**[www.nmoe.org/  
bubblewrap](http://www.nmoe.org/bubblewrap)**

## **Architect Studio 3D**

Design a House with Frank Lloyd Wright



### **Design Studio**

On this Web site, you can design a house, walk through it in 3D, and then share it with the world. You can also learn more about architecture, past and present, and explore Frank Lloyd Wright's life and work.

**[http://  
www.architectstudio3d.or  
g/AS3d/home.html](http://www.architectstudio3d.org/AS3d/home.html)**

DonorsChoose.org  
An online charity connecting you to classrooms in need.

Help Center | My Account | Giving Cart: 0 items

See Projects Gifts About

1. You give  
to any classroom  
project request

2. We deliver  
the materials to  
the teacher and kids

3. You change lives  
and see it in photos  
and thank-you notes

Social Media Challenge  
Give-Back Birthday

Teachers go here!

"I gave to my own  
project to ensure that

### **DonorsChoose.org**

is a simple way to provide students in need with resources that our public schools often lack. At this not-for-profit web site,

teachers submit project proposals for materials or experiences their students need to learn. These ideas become classroom reality when concerned individuals,

whom we call Citizen Philanthropists, choose projects to fund.

**[http://  
www.donorschoose.org](http://www.donorschoose.org)**



## **Moody's Mega Math Challenge™**

A CONTEST FOR HIGH SCHOOL STUDENTS

### **MATH MODELING CONTEST TO AWARD \$100,000 IN SCHOLARSHIP PRIZES**

**Moody's Mega Math (M3) Challenge** is a high school math competition that spotlights applied mathematics as a powerful problem-solving tool, as a viable and exciting profession, and

as a vital contributor to advances in an increasingly technical society.

Open to juniors and seniors, the M3 Challenge is entirely Internet-based and free of entry and participation fees.

Teams have 14 hours (7:00 a.m. to 9:00 p.m.)

to solve an open-ended, realistic, applied math-modeling problem focused on a real-world issue.

**[http://  
m3challenge.siam.org/](http://m3challenge.siam.org/)**

# **West Lafayette Junior/Senior High School**

**West Lafayette Community School Corporation  
1105 North Grant Street West Lafayette, IN 47906-2400**

**Feb 2, 2010**

To: Indiana Teachers

From: Steve Florence

Subject: Educator Workshop – The FIRST Experience For STEM Education

The Boilermaker Regional Educator Program is designed to prepare Junior High/Middle and Upper Elementary Teachers to inspire their students in Science, Technology, Engineering, and Math (STEM) using robotics. An introductory hands-on training program will be offered to teachers on Friday March 19, 2010 during the Boilermaker Regional FIRST Robotics Competition March 19-20, 2010. Activities will include LEGO Mindstorm (hands-on), demo of FTC robots and tour of the FRC robotics competition. There is a limit of 24 participants from 12 schools. All applications are due on March 1, 2010.

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Online registration: [www.conf.purdue.edu/bmr2010](http://www.conf.purdue.edu/bmr2010)

**For more program information please contact:**

Steve Florence, (765) 764-0400 phone, (765) 764-0426 fax, [florences@wl.k12.in.us](mailto:florences@wl.k12.in.us)



## **2010 FIRST ROBOTICS BOILERMAKER REGIONAL COMPETITION**

### **EDUCATORS PROGRAM: THE FIRST EXPERIENCE FRIDAY MARCH 19, 2010**

**Armstrong Building Room B098 Lab  
PURDUE UNIVERSITY WEST LAFAYETTE, IN.**

**8:30AM REGISTRATION AND CONTINENTAL BREAKFAST**

**9:00AM SESSION I  
WELCOME/INTRODUCTION  
FIRST OVERVIEW (FLL, FTC, FRC)**

**10:00AM SESSION II  
ACTIVITY USING LEGO MINDSTORM**

**12:00 NOON LUNCH AND NETWORKING**

**1:00PM SESSION III  
DEMO OF FTC ROBOT  
ACTIVITY USING LEGO MINDSTORM**

**2:00PM SESSION IV  
PIT TOUR AND COMPETITION**

**2:45PM SESSION V  
QUESTION AND ANSWER**

**3:00PM CLOSING AND PROGRAM ADJOURNMENT**

**PURDUE**  
UNIVERSITY.





# 2010 FIRST Robotics Boilermaker Regional Competition

## EDUCATION PROGRAM

Friday, March 19 • Purdue University • West Lafayette, Indiana  
Registration Deadline March 1



Contact Name \_\_\_\_\_

School Name \_\_\_\_\_

School Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-mail (required) \_\_\_\_\_ This is my ☐ home ☐ work e-mail.

### Attending Representative(s) information:

1. Name \_\_\_\_\_ Title \_\_\_\_\_

E-mail (required) \_\_\_\_\_ This is my ☐ home ☐ work e-mail.

☐ I require auxiliary aids/services due to a disability. Please contact me at the above address.

☐ I would like a vegetarian meal.

2. Name \_\_\_\_\_ Title \_\_\_\_\_

E-mail (required) \_\_\_\_\_ This is my ☐ home ☐ work e-mail.

☐ I require auxiliary aids/services due to a disability. Please contact me at the above address.

☐ I would like a vegetarian meal.

### Payment Method *Payment is required upon submission of registration.*

☐ Enclosed is a check made payable to **Purdue University** for \$50. This fee pays for two representatives.

☐ I will be using a company purchase order. (*Copy of purchase order required.*)

PO Number \_\_\_\_\_

☐ Please charge to my: ☐ VISA ☐ American Express ☐ Discover ☐ MasterCard

Card Number \_\_\_\_\_ Expiration Date \_\_\_\_\_

Authorized Signature \_\_\_\_\_

Printed Name \_\_\_\_\_

Please mail with payment to:

CEC Business Services  
Purdue University  
Stewart Center, Room 110  
128 Memorial Mall  
West Lafayette, IN 47907-2034

or fax your with credit card information to:

(765) 494-0567

## Register online at: [www.conf.purdue.edu/bmr2010](http://www.conf.purdue.edu/bmr2010)

For registration information, contact: Erica Wilson, Phone: 765/494-7221; FAX: 765/494-0567; E-mail: [ericaw@purdue.edu](mailto:ericaw@purdue.edu)

For program content information, contact: Steve Florence, Phone: 765/746-0400; FAX: 765/746-0426; E-mail: [florences@wl.k12.in.us](mailto:florences@wl.k12.in.us)

*Purdue University is an equal access/equal opportunity university.*





**START HERE  
GO FURTHER**  
FEDERAL STUDENT AID®

### TEACH GRANT PROGRAM

Through the College Cost Reduction and Access Act of 2007, Congress created the Teacher Education Assistance for College and Higher Education (TEACH) Grant Program that provides grants of up to \$4,000 per

year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families. If you are interested in learning more about the TEACH Grant Program, you should contact the financial aid office at the college where you will be

enrolled to find out if they will participate in the TEACH Grant Program. For a listing of the TEACH Grant eligible institutions, click [here](#).

<http://studentaid.ed.gov/PORTALSWebApp/students/english/TEACH.jsp>



### Public Service Loan Forgiveness Program

As a teacher in a public school or public service job you might be all eligible for the **Public Service Loan Forgiveness Program**.

Please be advised that your loans must be with The Federal Department of Education and they may also be able to help consolidate your loans for you.

A **Consolidation Loan** allows you to combine one or more of your federal education loans

into a new loan that offers you several advantages such as one monthly payment, flexible repayment options, and reduced monthly payments. For more details contact the Public Service Forgiveness Program at: Contact 1-800-848-0979

<http://www.finaid.org/loans/publicservice.phtml>



**START HERE  
GO FURTHER**  
FEDERAL STUDENT AID®

### Federal Perkins "Loan" Cancellations for Teaching in a Designated Subject Shortage Area

This cancellation is based on full-time teaching if there is a shortage of teachers in your subject area. Each year the state education agency

determines any subject shortage areas in the elementary and secondary schools within the state.

Check with your local school system or state education agency to find out if your subject matter area has been so designated. If you teach full time in science,

mathematics, foreign language, or bilingual education, you qualify for cancellation even if the state has not designated one of these subject areas as a shortage area. the "Teacher Shortage Areas" a nationwide listing by content area.

<http://studentaid.ed.gov/PORTALSWebApp/students/english/cancelperk.jsp>

## INDIANA SUPER MILEAGE CHALLENGE

**Mike Fitzgerald**  
Technology Education Specialist  
Indiana Department of Education  
mfitzger@doe.in.gov  
317-232-6990

It is the policy of the Indiana Department of Education not to discriminate on the basis of race, color, religion, sex, national origin, age, or disability, in its programs, activities, or employment policies as required by the Indiana Civil Rights Law (I.C. 22-9-1), Title VI and VII (Civil Rights Act of 1964), the Equal Pay Act of 1973, Title IX (Educational Amendments), Section 504 (Rehabilitation Act of 1973), and the Americans with Disabilities Act (42 USCS §12101, et. seq.).

Inquiries regarding compliance by the Indiana Department of Education with Title IX and other civil rights laws may be directed to the Human Resources Director, Indiana Department of Education, Room 229, State House, Indianapolis, IN 46204-2798, or by telephone to 317-232-6610, or the Director of the Office for Civil Rights, U.S. Department of Education, 111 North Canal Street, Suite 1053, Chicago, IL 60606-7204



The screenshot shows the Indiana Department of Education website. At the top is the 'IN.gov' logo and a search bar. Below the logo are navigation links for various state departments. The main header reads 'Indiana Department of Education SUPPORTING STUDENT SUCCESS'. A sidebar on the left contains links for 'DOE HOME', 'STREAMING VIDEO HOME', and 'ABOUT US'. The main content area features a video player titled 'Dr. Tony Bennett's Podcast April 3rd, 2009' with a 'Download This Video' button. The video player shows a man speaking, with the text 'Dr. Tony Bennett's Podcast April 3, 2009' overlaid.

The document is titled 'THE VISION' and 'THE PLAN' from the Indiana Department of Education. The vision statement reads: 'The academic achievement and career preparation of all Indiana students will be the best in the United States and on par with the most competitive countries in the world.' The plan is divided into two main sections: 'THE VISION' and 'THE PLAN'. Under 'THE PLAN', there are two main bullet points: 1. Create and promote a statewide culture of academic excellence, in which at least: a) 90% of students pass both Math and English/Language Arts sections of ISTEP+ and End-of-Course Assessments; b) 25% of all graduates receive a score of 3, 4 or 5 on at least one Advanced Placement exam, a 4 or higher on an International Baccalaureate exam, or receive the equivalent of 3 semester hours of college credit during their high school years; and c) 90% of students graduate from high school. 2. Institute and sustain an emphasis on reading at the elementary level and integrate reading and writing into all content areas to ensure students are able to comprehend and to apply new knowledge across the curriculum and in practical settings. The document also mentions 'Drive college preparedness by designing and implementing a coherent Advanced Placement (AP) course strategy, including a focus on AP readiness at the middle school level and an aggressive dual-credit strategy.' and 'Focus on middle school success by ensuring an engaging learning environment that demands academic rigor, begins career preparation awareness and builds upon elementary achievement in basic skills.' and 'Integrate Title I, English Language Learners (ELL), High Ability and Special Education programs seamlessly into the learning environment by focusing on meeting the needs of the child and complementing the learning experience.' and 'Create multiple pathways for learning that enable all students to attain postsecondary success.' and 'Create a vibrant statewide Career and Technical Education program through the creation of state of the art Programs of Study that integrate rigorous academic standards, prepare students

See the NEW IDOE Vision and Plan at:  
<http://www.doe.in.gov/actionplan/index.html>